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SUBSTITUTE SPECIFICATION

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METHOD OF PROCESSING A NANOTUBE USING A SELECTIVE SOLID STATE REACTION

BACKGROUND OF THE INVENTION

The present invention relates to a method of processing a nanotube, and more particularly to a method of processing a nanotube, which is suitable for cutting the nanotube and for forming a top of the nanotube.

A single-walled carbon nanotube has an extremely fine structure of nanometer order. Properties of the single-walled carbon nanotube have been on the investigation. The research and developments of the single-walled carbon nanotube for application have been active. The single-walled carbon nanotube comprises a single layer of graphite hexagonal network. An electron structure largely varies depending upon a diameter of the tube and a chiral angle, for which reason the electrical conductivity of the carbon nanotube varies between a conductivity of a metal and a conductivity of a semiconductor, and further the carbon nanotube exhibits a property similar to one-dimensional electric conduction.

The carbon nanotube may be applied to a field emitter. This field emitter has been known and is disclosed in (1) W.A. de Heer, A.Chatelain, and D. Ugarte, Science 270, 1179 (1995) ; (2) A.G. Rinzler, J.H. Hafner, P. Nikolaev, L. Lou, S.G. Kim, D. Tomanek, P. Nordlander, D.T. Colbert, and R.E. Smalley, Science, 269, 1550 (1995) ; (3) P.G. Collins and A. Zettl, Appl. Phys. Lett., 69, 1969